CDF Operations Report

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1st-December-2003

All Experimenters Meeting

This Week's Stores

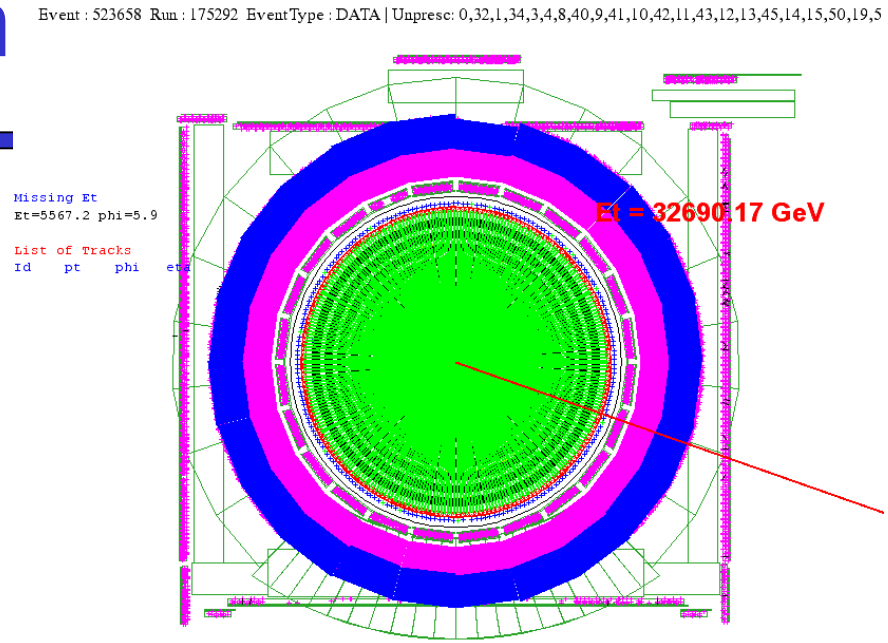
Many thanks to beams division for providing beam over holiday weekend

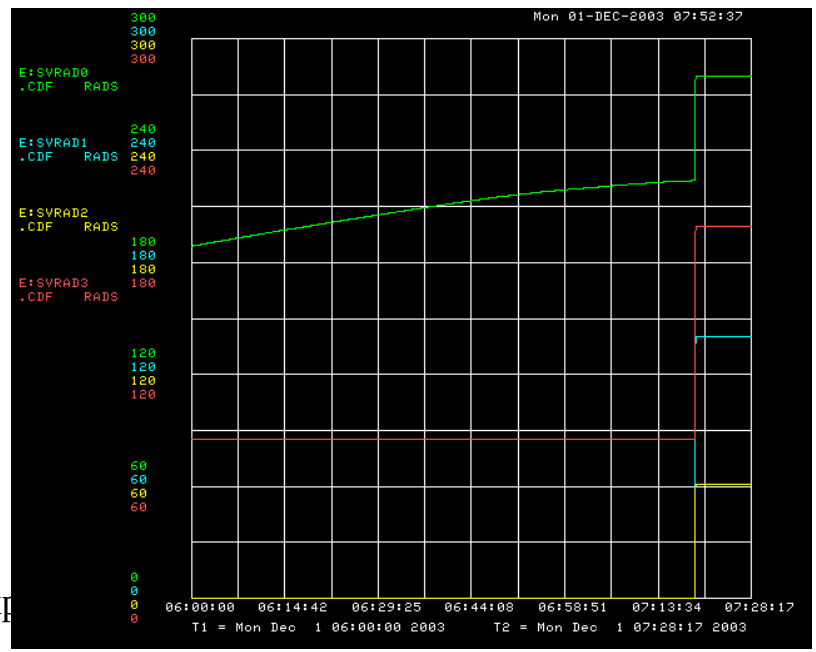
Date	Store	Inst Lum (initial)	Int Lum (delivered)	Lum to tape (ε)
Su 11/22	3033	0.6e30	7.6	5.4 (72%)
Sa 11/23	3043	8.8e30	231	59 (26%)
Mo 11/25	3048	9.2e30	253	159 (63%)
Tu 11/26	3050	15.4e30	1023	780 (76%)
Th 11/28	3052	21.6e30	989	765 (77%)
Sa 11/29	3053	18.8e30	>357*	137 (<38%)
Mo 12/1	3057	22.5e30	413	298 (72%)
Total			>3.27 pb^{-1}	2.30 pb^{-1} (<70%)

*Luminosity counter was off for ~6 hours

TeV Quench

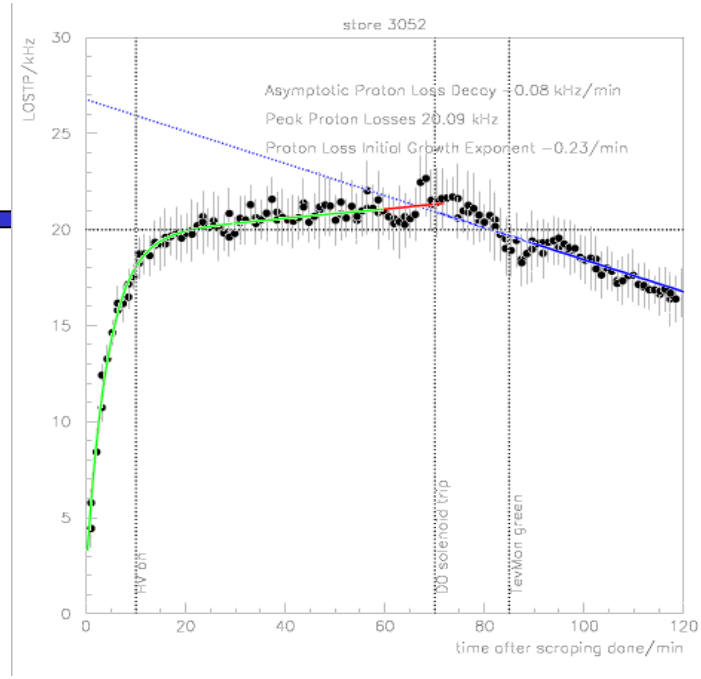
- Most of the quenches last week happened on terminating the store
  - Detector HV is off
- Monday morning 7am
  - We were up and running
  - Large radiation at B0 (caused by the abort kicker timing changes)
  - Most of the detector HV tripped off
  - High radiation in silicon: ~150 Rad/s
  - 3 SVX ladders haven't recovered yet
    - 1 ladder: rϕ side readout chip
    - 2 ladders: z side readout chip
- WE WILL KEEP SILICON OFF UNTILL THIS PROBLEM TO BE UNDERSTOOD AND RESOLVED

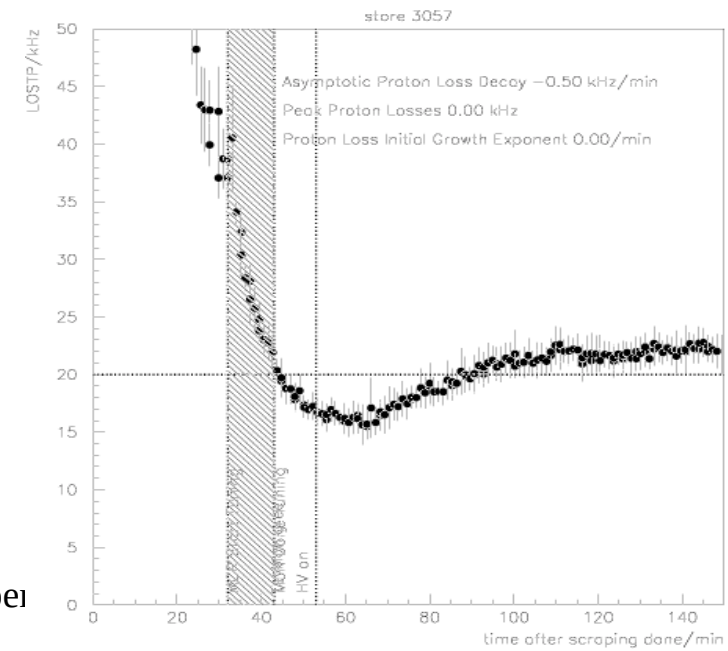




Beam Losses

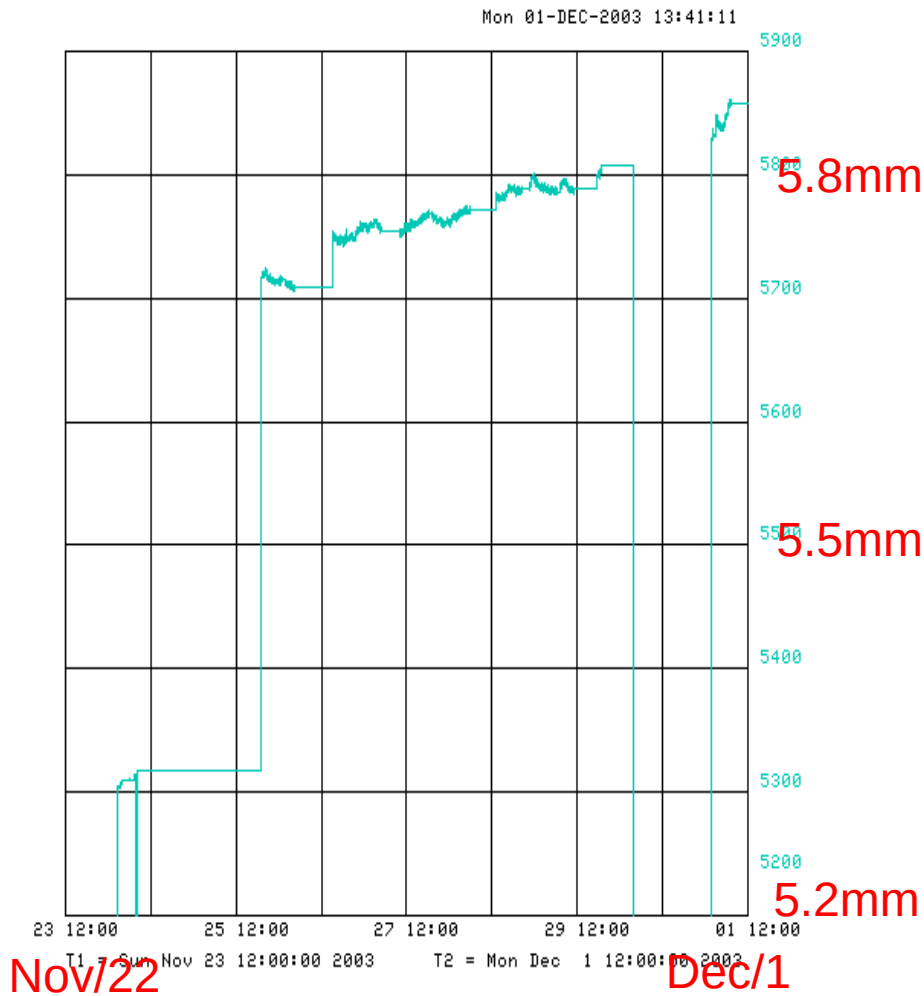
- High proton losses
  - Limit for Silicon on: 20 kHz
  - Limit for detector on: 30 kHz
- First 4 stores after shutdown
  - Very low: < 5 kHz
- Thursday store 3052
  - ~20 kHz
- Saturday store 3053
  - ~5 kHz
- Monday store 3057
  - Very high >100 kHz
  - All detector down for ~50 minutes





Beam Position

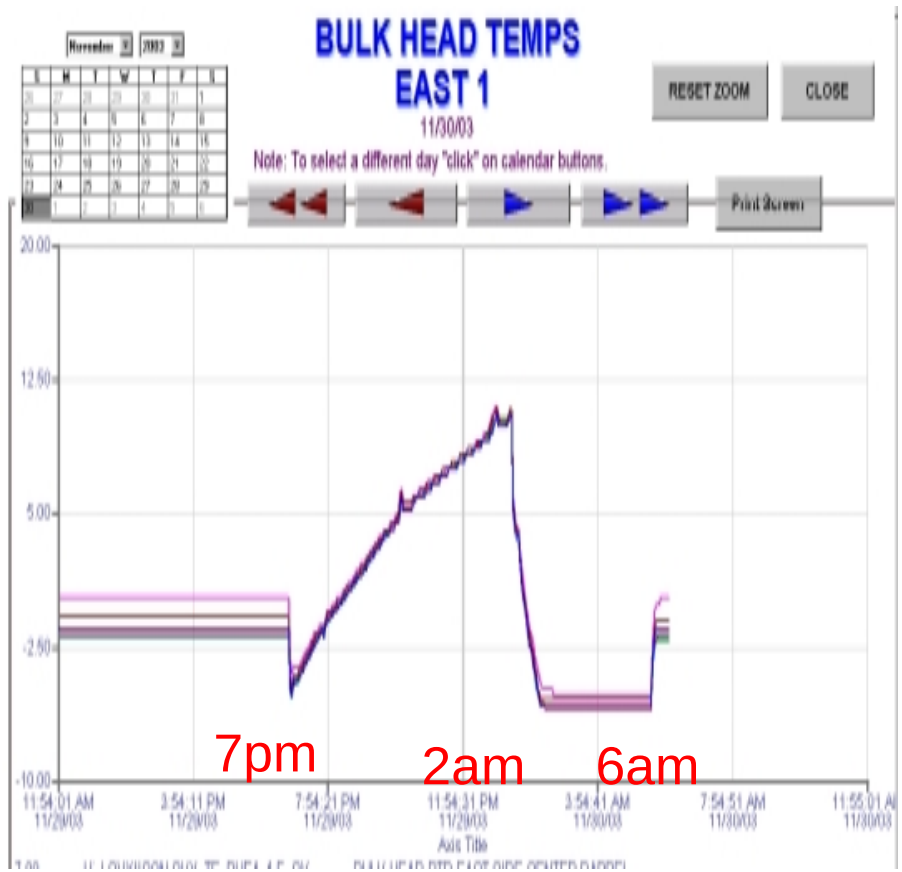
- Our beamline is off by > 6 mm
  - It doesn't directly affect to data taking efficiency.
  - There are major impacts to long term operations and physics sensitivity
- Innermost silicon layer @1.7 cm
  - ~50% more radiation
- Tracking trigger inefficiency
  - ~30% loss for $B_s \rightarrow D_s \pi$ signal yield
- complicates physics analysis
  - Asymmetric b-tagging efficiency vs. ϕ
- The first store after shutdown
  - ~same as pre-shutdown
- +0.55 mm in y in past 1 week
  - Keep moving up for all the stores



Detector operation

- Saturday store 3053
  - Power for motor control center tripped
    - ~ Saturday 7 pm
  - Many cooling systems couldn't operate operate
    - Silicon cooling
    - Electronics water cooling
    - Air conditioner for online computer room
  - Turn off magnet, silicon, racks, and computers (basically everything).
  - The problem was bad circuit breaker
    - Turn off building power for replacement
    - Power back ~ Sunday 1 am
  - Luminosity monitor back ~ 3am
  - Start physics run w/o Si ~ 7am
  - Integrate Silicon~ 10 am

- So far no damage to detector



Summary

- 3.3 (+x) pb^{-1} delivered luminosity over holiday week
  - Thanks again to Beams division
  - Concerns for TeV quench, beam loss, and beam position
- It wasn't "quiet and smooth holiday week running" for CDF
  - Overall data taking efficiency ~70%
  - We'll do this for Xmas week
- Some evidences we are taking physics data